Volunteer Lake Assessment Program Individual Lake Reports

BEARCAMP POND, SANDWICH, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	7,680	**Max. Depth (m):**	9.2	**Flushing Rate (yr^{-1}):**	8.5
Surface Area (Ac.):	167	**Mean Depth (m):**	2.7	**P Retention Coef:**	0.46
Shore Length (m):	4,200	**Volume (m^3):**	1,769,500	**Elevation (ft):**	596

TROPHIC CLASSIFICATION

Year	Trophic class
1982	MESOTROPHIC
1998	MESOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

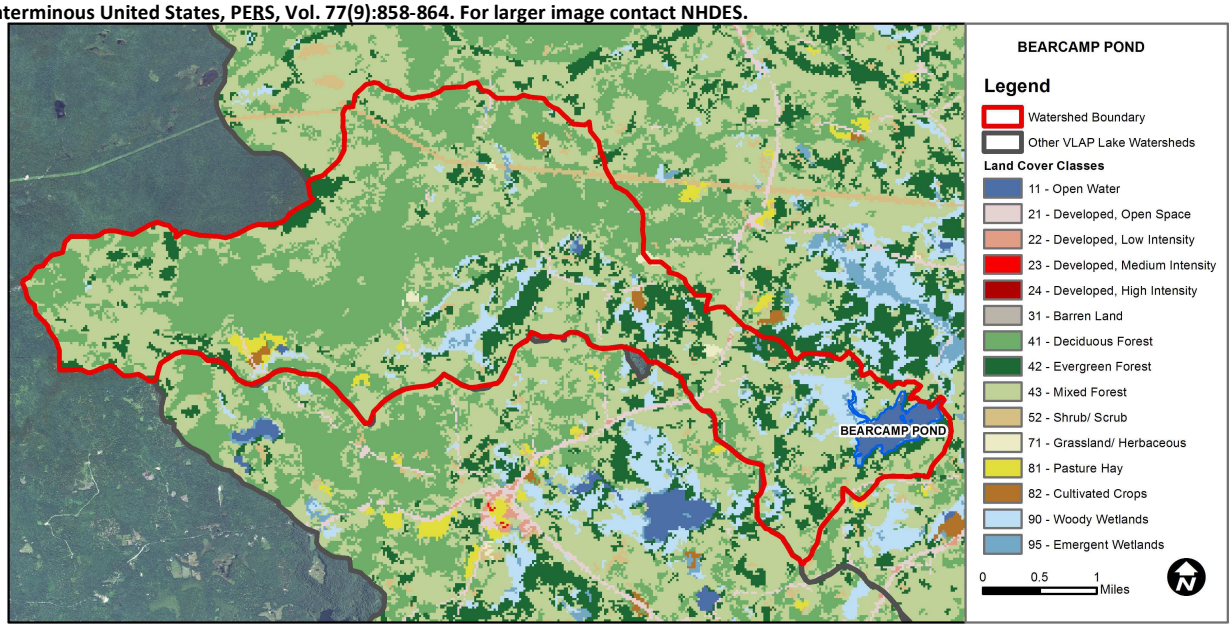
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
	pH	Bad	>10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.
	D.O. (mg/L)	Cautionary	< 10 samples and 1 exceedance of criteria. More data needed.
	D.O. (% sat)	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Chlorophyll-a	Good	>/=5 samples and median is < threshold but > 1/2 threshold value.
Primary Contact Recreation	E. coli	Encouraging	>2 samples exist that are > 75% of geometric mean criteria, but not enough samples to calculate geomertic mean. No single sample exceedances. More data needed.
	Chlorophyll-a	Good	At least 10 samples with 1 sample but < 10% of samples exceeding criteria.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

BEARCAMP POND - TOWN BEACH	E. coli	Good	Geometric means < criteria; however at least 1 exceedance of the single sample criteria occurred.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	1.76	Barren Land	0	Grassland/Herbaceous	0.3
Developed-Open Space	0.92	Deciduous Forest	36.89	Pasture Hay	0.66
Developed-Low Intensity	0.01	Evergreen Forest	12.32	Cultivated Crops	0.36
Developed-Medium Intensity	0	Mixed Forest	39.88	Woody Wetlands	4.87
Developed-High Intensity	0	Shrub-Scrub	1.36	Emergent Wetlands	0.58

VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS
BEARCAMP POND, SANDWICH, NH
2012 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (*Refer to Table 1 and Historical Deep Spot Data Graphic)*

- **CHLOROPHYLL-A:** Chlorophyll levels were low and less than the NH lake median in June and July, however chlorophyll levels spiked in August indicating an algal bloom had occurred. Historical trend analysis indicates average chlorophyll levels fluctuate between 5.0 and 9.0 ug/L.
- **CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity were low and well below the NH lake median.
- **TOTAL PHOSPHORUS:** Deep spot and tributary phosphorus levels were average for most NH lakes. Historical trend analysis indicates epilimnetic (upper layer) phosphorus levels fluctuate between 6 and 25 ug/L.
- **TRANSPARENCY:** Deep spot transparency was approximately equal to the NH lake median and has remained relatively stable since 2000.
- **TURBIDITY:** Hypolimnetic (lower water layer) turbidity was slightly elevated in July indicating potential bottom sediment contamination. Metalimnetic (middle water layer) turbidity was slightly elevated throughout the summer and likely due to algal growth in the metalimnetic waters. Tributary turbidity was relatively low.
- **PH:** Average pH levels were lower than desirable.
- **RECOMMENDED ACTIONS:** The pond has a history of short duration algal blooms in early to mid - August. Watch for algal blooms and schedule a biologist visit in August for 2013.

Dissolved Oxygen & Temperature Profile

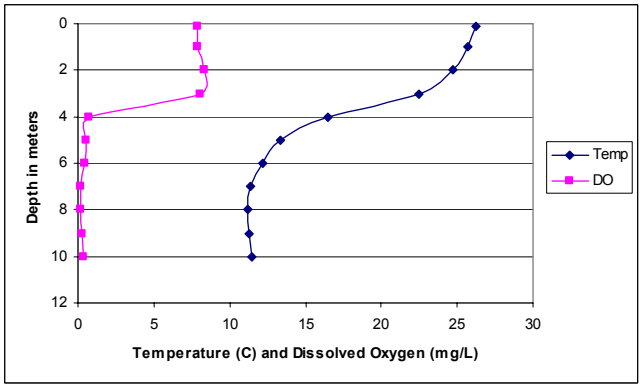


Table 1. 2012 Average Water Quality Data for BEARCAMP POND

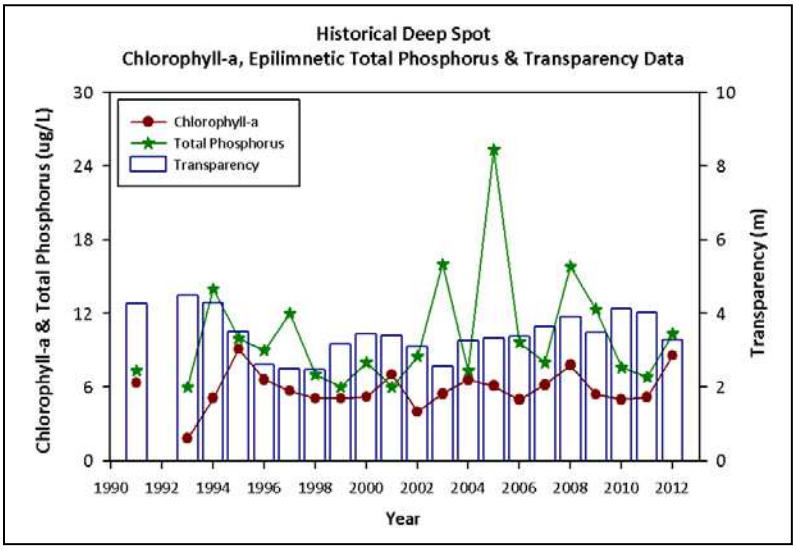
Station Name	Alk.	Chlor-a	Cond.	Total P	Trans.		Turb.	pH
	mg/l	ug/l	uS/cm	ug/l	m		ntu	
					NVS	VS		
Deep Epilimnion	3.6	8.57	21.8	10	3.27	3.68	0.79	6.54
Deep Metalimnion			21.6	12			1.57	5.82
Deep Hypolimnion			24.3	14			2.05	6.14
Inlet			27.3	14			1.12	6.19
Outlet			21.6	10			0.67	6.42
Preinlet			26.6	13			0.64	6.6

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.
Alkalinity: 4.9 mg/L
Chlorophyll-a: 4.58 mg/m^3
Conductivity: 40.0 uS/cm
Chloride: 4 mg/L
Total Phosphorus: 12 ug/L
Transparency: 3.2 m
pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.
Chloride: < 230 mg/L (chronic)
E. coli: > 88 cts/100 mL – public beach
E. coli: > 406 cts/100 mL – surface waters
Turbidity: > 10 NTU above natural level
pH: 6.5-8.0 (unless naturally occurring)

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation
Chlorophyll-a	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.
Transparency	Stable	Data not significantly increasing or decreasing.
Phosphorus (epilimnion)	Variable	Data fluctuate annually, but are not significantly increasing or decreasing.



This report was generated by the NH DES Volunteer Lake Assessment Program (VLAP). For more information contact:
Sara Steiner
PO Box 95
Concord, NH 03302-0095
(603) 271-2658
sara.steiner@des.nh.gov